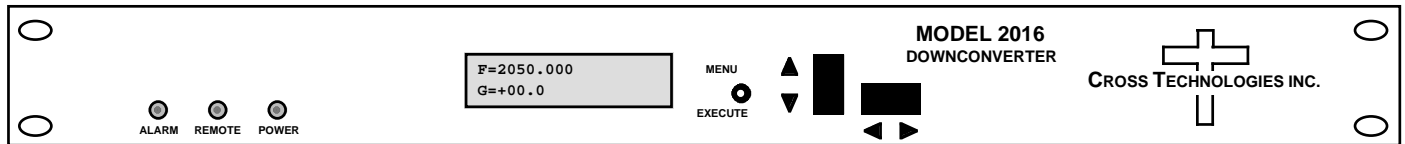


## 2016-225 Downconverter, 2.0 - 2.5 GHz to 70 MHz

The 2016-225 Downconverter converts 2000 to 2500 MHz to 70 ± 18 MHz in 1kHz, 10kHz, 100kHz or 125kHz steps (user selectable) with low group delay and flat frequency response. Synthesized local oscillators (LO) provide very low phase noise and ±0.01 ppm stability frequency selection. Multi-function push button switches select the RF frequency, gain, and other parameters. Front panel LEDs provide indication of DC power (green), PLL alarm (red), and remote operation (yellow). Variable attenuators provide a gain range of 0 to +50 dB as adjusted by the front panel multi-function push-button switches. Remote operation allows selection of frequency and gain. Parameter selection and frequency and gain settings appear on the LCD display. Connectors are BNC female for IF Input, RF output and the optional external reference input and output. The External 10MHz option includes a 10MHz input and output connector. The unit is powered by a 100-240 ± 10% VAC power supply, and housed in a 1RU X 16" chassis.



**Front Panel**

### EQUIPMENT SPECIFICATIONS\*

#### Input Characteristics (RF)

Impedance / Return Loss 50Ω / 12dB  
Frequency 2.0 to 2.5 GHz  
Input Level Range -70 to -20 dBm  
Input 1dB compression -15 dBm

#### Output Characteristics (IF)

Impedance / Return Loss 50Ω / 18dB  
Frequency 70 ± 18 MHz  
Output level/max linear -20dBm / -10dBm  
Output 1 dB compression -5 dBm

#### Channel Characteristics

Gain range (adjustable) 0 to +50 dB  
Image Rejection > 50 dB, min.  
Frequency Response ±1.5 dB, 2.0-2.5 GHz ; ± 0.5 dB, 36 MHz BW  
Spurious Response < -50 dBc, in band  
Group Delay, max 0.015 ns/MHz<sup>2</sup> parabolic; 0.05 ns/MHz linear; 1 ns ripple  
Frequency Sense Inverting or Non-inverting (selectable)

#### Synthesizer Characteristics

Frequency Accuracy ± .01 ppm internal reference  
Frequency Step 1kHz, 10kHz, 100kHz, or 125kHz (user selectable)  
10 MHz In/Out Level 3 dBm ± 3 dB (option E)

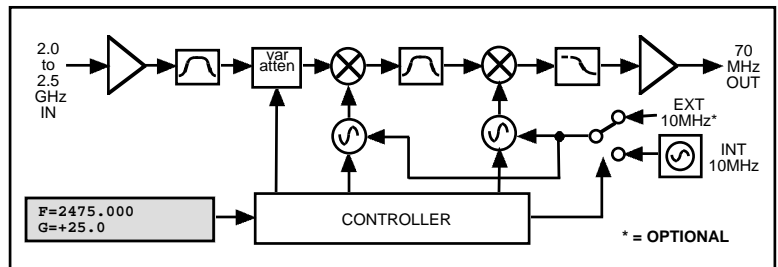
Phase Noise @ Freq	100Hz	1kHz	10kHz	100kHz	1MHz
dBC/Hz	-72	-85	-88	-110	-120

#### Controls, Indicators

Freq/Gain Selection Direct readout LCD; manual or remote selection  
Pwr; Alarm; Rem; Mute Green LED; Red LED; Yellow LED; Red LED  
Remote RS232C, 9600 baud (RS485, Option Q)

#### Other

RF, IF Connectors BNC (female)  
10MHz Connectors BNC (female), 50Ω/75Ω (Option E)  
Alarm/Remote Connector DB9 (female) - NO or NC contact closure on Alarm  
Size 19 inch, 1RU standard chassis 1.75"high X 16.0" deep  
Power 100-240 ± 10% VAC, 47-63 Hz, 45 W max



**Block Diagram**

#### Available Options

E - External 10 MHz ref input & output  
Q - RS485 Remote Interface  
T - Temperature Sensor  
W8- Ethernet with Web Browser  
W28- Ethernet with TCP/IP, Telenet®  
**W32-** P1dB Compression = +10 dBm,  
Max. Output Level = 0 dBm

#### Connectors/Impedance

B - 75Ω BNC (RF), 75Ω BNC (IF)  
C - 50Ω BNC (RF), 75Ω BNC (IF)  
N - 50Ω N-type (RF), 75Ω BNC (IF)  
M - 50Ω N-type (RF), 50Ω BNC (IF)

\*10°C to 40°C; Specifications subject to change without notice